



Corrective Effect of Ministerial Terminations on Presidential Approval

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Introduction

Introduction

Our question is: **How do ministerial terminations affect presidential approval?**

This study makes a theoretical contribution in that it applies and adapts the **potential corrective effect** of ministerial terminations in parliamentary systems, taking into account:

- Features of presidential systems
- Cabinet reshuffle mechanisms
- Patterns of presidential approval

Theory

Cyclical Model of Presidential Approval

Across countries, presidential approval dynamics tend to follow a cyclical model with quadratic patterns (Brace and Hinckley, 1992; Carlin et al., 2018; Stimson, 1976). At the beginning of a presidential term, a **honeymoon period** is observed, implying high approval ratings during the early months after an election. These then begin to **deteriorate gradually** until, as new elections approach, a **slight recovery** tends to be observed.

It is also important to consider the **influence of the economy** on approval dynamics. This connects with the large body of literature on **retrospective voting** according to which leaders are evaluated mainly on the basis of the recent past, rather than their long-term performance (Achen and Bartels, 2016; Healy and Lenz, 2014; Sances, 2021).

The Corrective Effect of the Resignation of Questioned Ministers

In parliamentary systems, prime ministers may act strategically and **dismiss cabinet members** who are performing poorly or have become involved in scandals of different types, thereby generating a recuperative or **corrective effect on approval** (Dewan and Dowding, 2005). However, there is **little evidence of this**:

- Dewan and Dowding (2005), using IV, found a **corrective effect** on government popularity in the UK, but only if the resignation issue had received extensive media coverage.
- Miwa (2018) found a **positive effect** on cabinet approval in Japan when survey respondents were given information about a recent ministerial reshuffle.
- McAllister (2003) detected a **negative relationship** between the dismissal of ministers for irregularities and the popularity of the prime minister in Australia.

Presidential Systems Features

Similarly to parliamentary systems, we consider **age as an instrument** that may affect the probability of a minister's survival because it operates as a proxy for experience. However, we also consider the **proportion of nonpartisan ministers** in the cabinet as an instrument that can serve as a proxy for the president's level of control over agency loss (González-Bustamante, 2022; Martínez-Gallardo and Schleiter, 2015).

We consider the effect of certain factors in light of certain **features of presidential systems**:

- Cumulative level of resignation calls and non-linear effects
- Issues visibility (proxy related to ministries)
- Presidential leverage (control of the relevant Houses)
- Government type (single-party vs. coalition)

Empirical Strategy

Cross-National Data

We combined the Tesseract Optical Character Recognition (**OCR**; see [Ooms, 2021](#)) with different **semisupervised machine learning models** to distinguish between resignation calls and other mentions of cabinet members in the press. This was applied to **46 years** of **Latin American Weekly Report (LAWR) archives**.



Cross-National Data

Resignation calls are **noisy indicators** of ministerial performance that can, when they accumulate, generate the minister's departure (Dewan and Myatt, 2010). They correlate with the different **stochastic events** that governments have to address and, albeit a noisy indicator, are empirically efficient because it is logically very complex to measure all the possible stochastic events and random shocks faced by a government (Berlinski et al., 2010).

The indicator of calls for ministers' resignation is based on the identification of events related to personal or financial scandals, public policy failures or internal disagreements in the cabinet, in line with the categorisation used by some authors (Berlinski et al., 2010; Dewan and Dowding, 2005). In a limitation, **this indicator is binary** because the training of a multiclass classification model yielded accuracy levels below 50%.

Tesseract Optical Character Recognition



How Domingo Cavallo rose to become Menem's virtual prime minister

Argentina are still hotly debating what lay behind the sudden resignations of President Raúl Alfonsín and his replacement, Domingo Cavallo. His rapid, uncontrolled usurpation of the role of economy minister – dismissed as suffi-

cient reason for his removal – has been published about all sorts of political plots. One that seems certain is that Cavallo had some kind of understanding with Senator Eduardo Menem, the President's brother, to support Cavallo as his economy minister. In this scenario, all Cavallo would follow a first phase of "state sailor". In this scenario, all Cavallo was to choose his own timing.

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INSIDE

PERU: Wildlife spread of cholera epidemic. (2)

EQUADOR: Holiday disease impact on citizens. (4)

COSTA RICA: Presents of \$10,000,000, with CHUSL. (2)

VENEZUELA: Lower prices force budget rethink. (2)

BOLIVIA: A Soviet partner for Latin America? (2)

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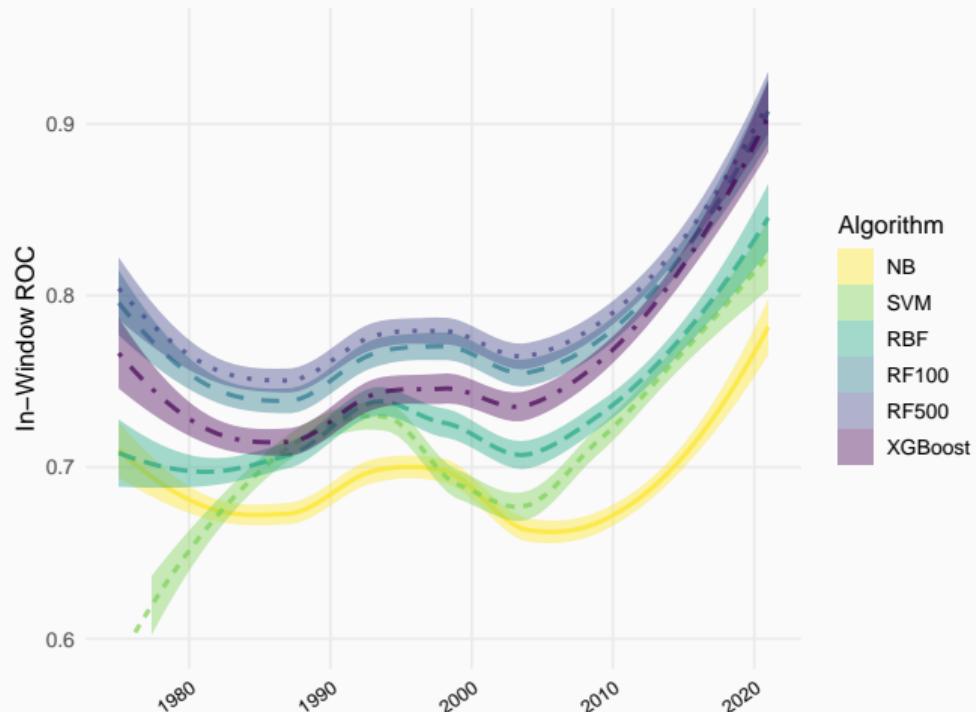
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Goodness-of-Prediction of Semisupervised Models (1975-2021)

Following Greene et al. (2019), we trained semisupervised models using a **five-year fixed rolling window** from 1975 to 2021 to train algorithms and predict resignation calls.

Random Forest classifiers with 500 trees 10-fold cross-validated.



Data Encoding

Our data-gathering process sought to identify observations in a **dyadic relationship** composed of ministers-ministries.

With these individual-level indicators, we constructed a database of governments with quarterly observations. Consequently, the dataset contains *i-th* **observations of governments** defined in time intervals that correspond to the four **quarters of each year**.

This allowed us to incorporate **time-varying indicators** such as the smoothed quarterly presidential approval of Carlin et al. (2019), indicators from the World Bank (2022), political systems indicators from the Inter-American Development Bank (IDB; see Cruz et al., 2021) and WhoGov dataset (Nyrup and Bramwell, 2020).

Quadratic Dynamics of Approval

We fitted OLSs to test the **quadratic dynamics of presidential approval** using approval data, macroeconomic indicators, dummy variables for quarters (honeymoon and slight recovery towards the end of the term) and a lagged indicator of approval to control for **serial correlation**. The following is the fully specified model:

$$Y_i = \alpha_i + \zeta Y_{t-1[i]} + \beta GDP_i + \gamma \log(inflation)_i + \sum_{j=1}^J \delta_j quadratic_j[i] + \eta quarter_i + \xi country_i + \varepsilon_i \quad (1)$$

IV Regressions: Prais-Winsten Transformation

In the observational models, we control for serial correlation by using Y_{t-1} , however, in IV estimations the vector of Z must not be correlated with the error term. Therefore, we used a **three-stage procedure** (Dewan and Dowding, 2005; Greene, 2003). First, we used a model including the endogenous variable D , the k -th vector and FE:

$$Y_i = \alpha_i + \zeta Y_{t-1[i]} + \lambda_1 D_i + \sum_{k=1}^K \mu_k exog_k[i] + \beta GDP_i + \gamma \log(inflation)_i + \sum_{j=1}^J \delta_j quadratic_j[i] + \eta quarter_i + \xi country_i + \varepsilon_i \quad (2)$$

This allows us to obtain ρ for the AR(1) and apply a **Prais-Winsten transformation**.

IV Regressions: OLS First Stage

Then, we carried out a **regression of D with OLS** on the instruments, the vector of exogenous variables and the variables used in our baseline observational model. In this way, we were able to obtain an estimate of \hat{D} :

$$D_i = \alpha_{1[i]} + \sum_{m=1}^M \varphi_m Z_{m[i]} + \sum_{k=1}^K \mu_{1[k]} \text{exog}_k[i] + \beta_1 \text{GDP}_i + \gamma_1 \log(\text{inflation})_i + \sum_{j=1}^J \delta_{1[j]} \text{quadratic}_{j[i]} + \varepsilon_{1[i]} \quad (3)$$

This equation must be adjusted for the models with **two-way interactions**, replacing LHS with the respective interaction term $D_i \times \text{exog}_k[i]$.

IV Regressions: 2SLS Second Stage

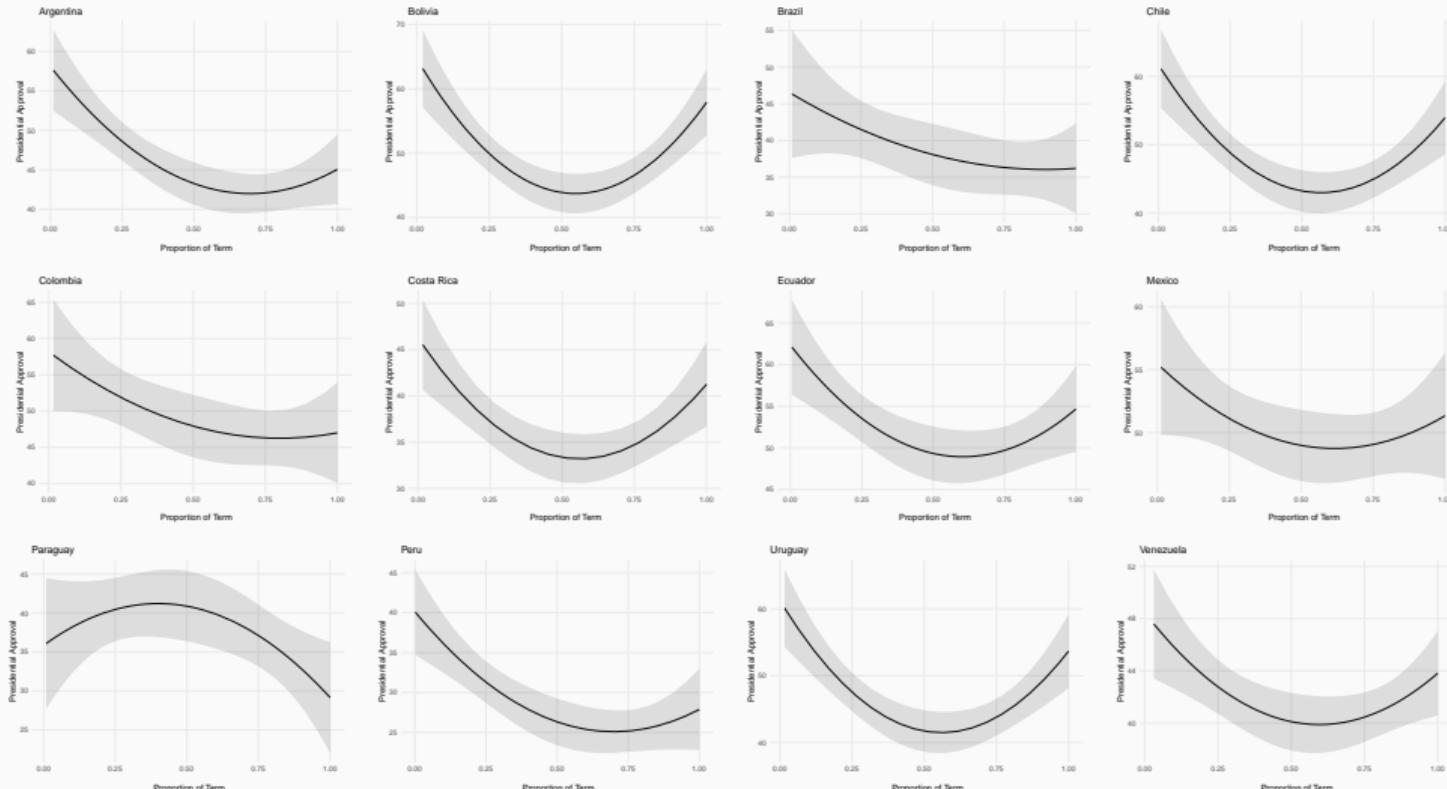
We obtained estimations with IV of the **effect of dismissing tainted ministers on presidential approval** through the following equation:

$$Y_i = \alpha_2[i] + \lambda_2 \hat{D}_i + \sum_{k=1}^K \mu_2[k] exog_k[i] + \beta_2 GDP_i + \gamma_2 \log(inflation)_i + \sum_{j=1}^J \delta_2[j] quadratic_j[i] + \varepsilon_2[i] \quad (4)$$

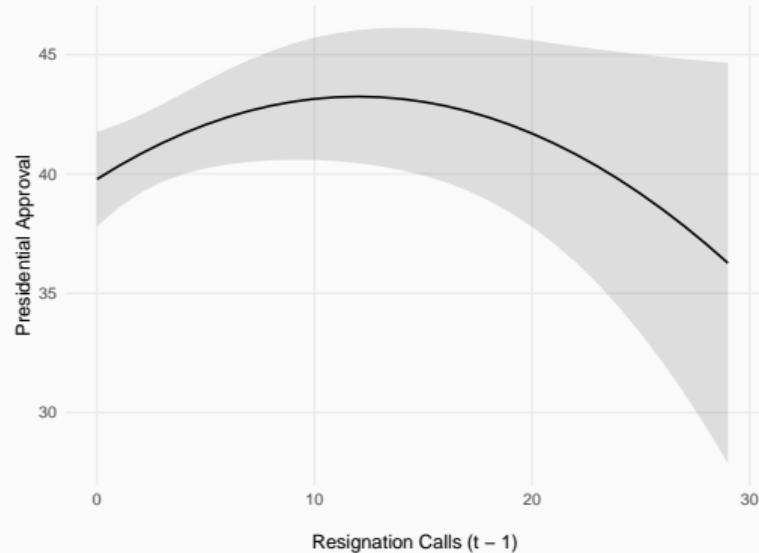
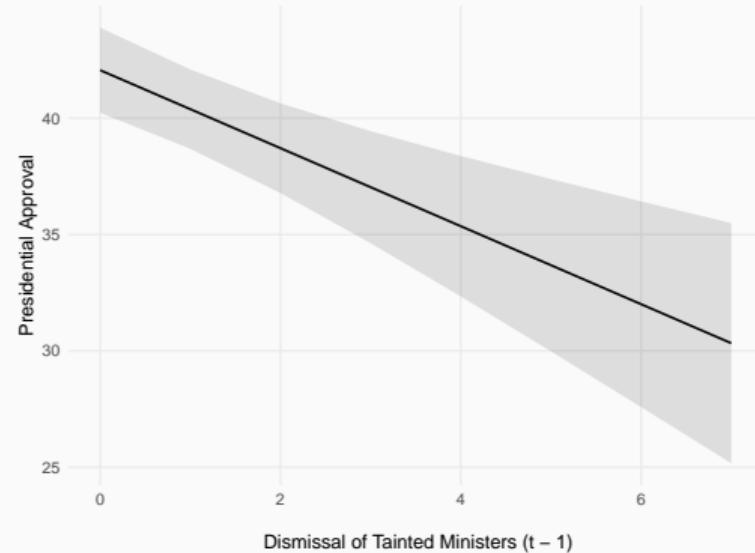
For the case of interactions, the term $\lambda_3 \hat{D}_i \times exog_k[i]$ must be incorporated in the RHS of the equation for the corresponding k -th variable to test different presidential settings.

Main Results

Quadratic Patterns of Presidential Approval



Dismissals of Tainted Ministers and Quadratic Effect of Resignation Calls



IV Estimates of Dismissals of Ministers on Presidential Approval

We tested the relationship between our vector of instruments and D during the IV first stage with OLS

In 2SLS, only in model V, a corrective effect is observed in the interaction between the dismissal of tainted ministers and coalition governments.

	Smoothed Approval				
Dismissals of tainted ministers ($t - 1$)	-21.620*** (5.731)	-26.109** (13.121)	29.767 (40.904)	-20.769** (9.047)	-42.398*** (14.384)
Resignation calls ($t - 1$)	2.091*** (0.699)	2.445** (1.239)	1.062 (1.356)	2.083*** (0.691)	1.600** (0.639)
Resignation calls ($t - 1$) squared	-0.161** (0.066)	-0.430 (0.771)	0.033 (0.192)	-0.161** (0.065)	-0.136** (0.058)
Issue visibility ($t - 1$)	-5.033** (2.310)	-4.986** (2.251)	46.652 (41.644)	-5.087** (2.380)	-4.702** (2.202)
Presidential leverage	6.774*** (1.931)	6.378*** (2.265)	6.302* (3.658)	7.964 (10.377)	8.394*** (2.343)
Coalition government	5.012** (1.947)	4.048 (3.491)	8.478* (4.992)	4.912** (2.208)	-15.111 (9.706)
Dismissals \times visibility		0.616 (1.749)			
Dismissals \times calls squared			-211.246 (170.246)		
Dismissals \times leverage				-4.947 (43.356)	
Dismissals \times coalition					86.853** (44.051)
Constant	16.145*** (1.365)	18.338*** (6.215)	3.827 (10.253)	15.976*** (1.940)	21.529*** (3.230)
Some controls and tests were omitted due to space constraints					
Weak instruments	6.271***	6.271***	6.271***	4.710***	6.271***
Weak interaction		0.627	4.339***	3.338***	3.543**
Wu-Hausman	43.161***	22.377***	27.013***	21.306***	26.177***
Sargan	3.377	3.386*	0.005	3.781	0.318
AIC	8301.339	8268.509	9733.066	8281.697	8166.514
N	1122	1122	1122	1122	1122

* $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$

Robustness Checks

We conducted three tests to **evaluate the IV regressions**: a weak instrument test, the Wu-Hausman test for endogeneity and the Sargan test for overidentification (Fox et al., 2023; Greene, 2003). We also tested the exclusion restriction and the CIA with additional correlations based on a causal diagram.

We also estimated some **checks for all the regressions**: VIF, Breusch-Pagan test for robust SD, LM test for panel data, Durbin-Wu-Hausman for the type of effects, Durbin-Watson for AR(1), among others.

As further checks of robustness, we **replicated our 2SLS estimates without the Prais-Winsten adjustment, excluding inflation** (12.9% of missing values), and with an **alternative measure of visibility** that focuses only on resignation calls associated with contingent politics and public safety issues.

Take Aways

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- ✓ Our observational regressions confirm the **cyclical pattern of presidential approval** with aggregate quadratic patterns. **Outlier countries** such as Brazil, Colombia, Mexico and Paraguay.
- ✓ The **dismissal of ministers** tends to have **negative repercussions for the president**, possibly because it crystallises a perception of incompetence and poor government performance. This is confirmed by our IV regressions, **except in the case of coalition governments**.
- ✓ Our argument, in line with our theory, is that, in coalition governments, a cabinet reshuffle, because it is more costly, may be perceived as a real **effort by the president to amend** the course of the government. Moreover, the level of personalisation in the figure of the president should be lower, implying **encapsulation of the questioning** and a corrective effect on presidential approval.

Take Aways

- ☒ Also, reshuffles in coalition governments can also serve to **optimise legislative support** and refresh the cabinet by **expanding the talent pool**, elements that should also favour a corrective effect.
- ☒ A limitation is that our resignation calls indicator operates as a noisy one of stochastic events. But this is also an opportunity for future research, is that **we do not distinguish by type of questioning** and particular dynamics that need to be theorised and empirically tested.
- ☒ This work makes a novel theoretical contribution because it allows us to **understand the effect of ministerial terminations on approval dynamics in presidential systems** and provides empirical evidence that did not previously exist.

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Thank you very much!



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